

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-25 (cancelled)

26. (new) A dual-chain avidin (dcAvd), characterized in that it comprises a fusion of two of the monomers selected from the circularly permuted monomers of circularly permuted avidin wherein the new N-terminus is before  $\beta$ -strand 5 and the new C-terminus  $\beta$ -strand 4 (cpAvd5 $\rightarrow$ 4), circularly permuted avidin wherein the new N-terminus is before  $\beta$ -strand 6 and the new C-terminus after  $\beta$ -strand 5 (cpAvd6 $\rightarrow$ 5), and circularly permuted avidin wherein the new N-terminus is before  $\beta$ -strand 4 and the new C-terminus after  $\beta$ -strand 3 (cpAvd4 $\rightarrow$ 3), where the carboxyl terminal amino acid and the amino terminal amino acid of the polypeptide of an avidin monomer have been joined directly or via a linker, and new carboxyl and amino termini have been created to the polypeptide, and the resulting circularly permuted avidin monomer binds biotin or other ligand.

27. (new) The dual-chain avidin of claim 26, characterized in that the avidin is selected from wild

type avidin, mutant form of avidin, streptavidin and variant of avidin, such as other poultry avidins and chicken avidin-related proteins (AVRs).

28. (new) The dual-chain avidin of claim 26, characterized in that the carboxyl terminal amino acid and amino terminal amino acid have been joined by a linker comprising one or more amino acids.

29. (new) The dual-chain avidin of claim 28, characterized in that the linker is a hexapeptide comprising four glycine residues and two serine residues and wherein one glycine is connected to the carboxyl terminal amino acid and one serine is connected to the amino acid.

30. (new) The dual-chain avidin of claim 26, characterized in that the biotin-binding affinity of the circularly permuted avidin is different from the wild type avidin biotin-binding affinity.

31. (new) The dual-chain avidin of claim 26, characterized in that the HABA-binding affinity of the circularly permuted avidin is different from the wild type avidin HABA-binding affinity.

32. (new) The dual-chain avidin of claim 26, characterized in that the monomer has been mutated.

33. (new) The dual-chain avidin of claim 32, characterized in that the monomer has been mutated by

changing the tyrosine residue 33 to any other amino acid residue X and/or the isoleucine 117 to any other amino acid residue X and/or the serine residue 16 to any other amino acid residue X and/or the threonine residue 35 to any other amino acid residue X and/or the asparagine residue 118 to any other amino acid residue X, (Y33X, I117X, S16X, T35X, N118X).

34. (new) The dual-chain avidin of claim 33, characterized in that the monomer has been mutated by changing the tyrosine residue 33 to histidine residue and/or the isoleucine residue 117 to cysteine residue and/or the serine residue 16 to alanine residue and/or the threonine residue 35 to alanine residue and/or the asparagine residue 118 to methionine, (Y33H, I117C, S16A, T35A, N118M).

35. (new) A dual-chain avidin of claim 26, characterized in that the two monomers are fused together directly or joined by means of a spacer.

36. (new) A dual-chain avidin of claim 35, characterized in that the spacer is a peptide spacer from about 1 to 40 amino acid residues.

37. (new) A dual-chain avidin of claim 36, characterized in that the spacer is a peptide SGG or SGGS.

38. (new) A dual-chain pseudo-tetrameric avidin, characterized in that it comprises two dual-chain avidins(dcAvd).
39. (new) A dual-chain pseudo-tetrameric avidin of claim 38, characterized in that it binds biotin.
40. (new) A single-chain avidin (scAvd), characterized in that it comprises two dual-chain avidin (dcAvd) molecules of claim 38 fused together to form a single polypeptide.
41. (new) A single-chain avidin of claim 40, characterized in that the dcAvd-molecules are fused together via a linker.
42. (new) A single-chain avidin of claim 41, characterized in that the linker is a 12 amino-acid linker GGSGSGSGSGSG.
43. (new) An isolated polynucleotide encoding any of the avidin proteins of claim 26.
44. (new) A recombinant vector comprising the polynucleotide of claim 43, wherein the polynucleotide is DNA.
45. (new) A recombinant host cell comprising the polynucleotide of claim 43, wherein said polynucleotide is DNA.
46. (new) A method for producing a polypeptide comprising expressing from the recombinant cell of

claim 45 the polypeptide encoded by said  
polynucleotide.